



Prediction of Fertility Potential (Ovarian Reserve) in Women

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A woman's fertility potential declines with age due to declining egg quality and numbers. This is reflected in the decreased ability to become pregnant and the increased rate of miscarriage with age. Although the ability to achieve a live birth decreases in all women as they become older, the precise age when a woman can no longer conceive varies among individuals. Approximately one-third of couples in which the female partner is age 35 or older will have problems with fertility. Several tests may be useful in assessing fertility potential (ovarian reserve) in women.

Day 3 Levels of FSH and Estradiol

The determination of blood concentrations of follicle-stimulating hormone (FSH) and estradiol on menstrual cycle day 3 has been used to estimate fertility potential. In general, women with elevated levels of FSH and/or estradiol on cycle day 3 have reduced chances of livebirth live birth with both ovulation induction and in vitro fertilization (IVF) compared to other women of the same age.

Several laboratory methods are used currently to measure blood levels of FSH and estradiol. Measurement of levels of these hormones may vary considerably depending upon the particular laboratory method used. Therefore, it may be difficult to compare blood levels of these hormones that are measured at different laboratories or by different laboratory techniques. It is important that normal and abnormal test values be based on the pregnancy rates achieved by women studied at a particular center using the same laboratory methods.

Clomiphene Citrate Challenge Test

This test involves the oral administration of 100 milligrams of clomiphene citrate on menstrual cycle days 5-9. Blood levels of FSH and estradiol are measured on cycle day 3 and the level of FSH also is measured on cycle day 10. Abnormally elevated blood levels of FSH on either cycle day 3 or day 10 are associated with reduced pregnancy rates with both ovulation induction therapy and IVF.

Antral follicle count

A transvaginal ultrasound may be performed in the early part of the menstrual cycle to count the number of small (2mm-10mm) follicles in the ovary. The number of these follicles reflects

underlying egg supply and response to gonadotropins. This test is more accurate if done by a physician or ultrasonographer experienced in working with fertility evaluations.

Response to Gonadotropins

Gonadotropins (such as Bravelle®, Follistim®, Gonal-F®, Repronex®, Menopur®) are concentrated mixtures of FSH and LH (or FSH alone) which are given as injections to stimulate the ovary to produce multiple eggs in preparation for various fertility therapies. The amount of gonadotropins required to induce egg development increases with increasing chronological age. Patients requiring large amounts of gonadotropins to induce egg development generally have lower pregnancy rates with both ovulation induction therapy and ART.

These tests are useful to qualitatively predict a woman's response to fertility treatment and her likelihood of success compared to other women of the same age. In younger women, abnormal test results suggest that fertility potential is declining, but they do not identify who will or who will not conceive. It is also important to remember that some younger women with normal test results have difficulty conceiving. Women older than 40 years with abnormal test results have poor chances of achieving pregnancy naturally and after ovulation induction, and in these women the use of donor eggs or embryos can be considered, because the chances of pregnancy are primarily related to the quality of the donated eggs. Unfortunately, even with a normal ovarian reserve test, older women may have difficulty achieving a pregnancy. Moreover, the results may vary from cycle to cycle. Any single abnormal test, however, generally indicates that fertility potential has diminished.